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MECHANIC ARTS

C. F. Curtiss, Director
BOTANY AND PLANT PATHOLOGY SECTION

Three New Wilt-Resistant Watermelons

By I. E. Melhus, J. J. Wilson and Duke V. Layton

Watermelon wilt, apparently a disease of very long standing in Iowa, probably was introduced into southeastern Iowa sometime previous to 1900. According to some of the men living in Muscatine County, there were approximately 8,000 acres of watermelons in this section in 1900. This area in 1930 had dwindled to 850 acres, a reduction of nearly 90 percent, due to the watermelon wilt disease.

This disease is caused by a fungus that enters the plant thru the roots. It spreads rapidly in the water-conducting vessels, finally plugging them and causing the plant to wilt. The fungus not only lives in the plant, but may also live in the soil for long periods of time. From year to year melon growers have been shifting the crop to new ground, but the wilt disease has followed and has become established thruout all the melon-growing districts of the state. Soil once infested can harbor the wilt organism 15 to 20 years. At present over 100,000 acres of productive sandy soils in Iowa are infested with the wilt-disease organism and are unsafe for growing watermelons. Part of this land is now lying idle, and that which is cultivated produces very low yields of corn and oats.

CONTROL MEASURES TRIED

Various control measures have been tried, such as treatment of the seed, the application of lime and other chemicals to the soil, heavy fertilization with barnyard manure and commercial fertilizers, growing the young watermelon plants in disease-free soil and then transplanting into the field and the testing of different commercial varieties for possible resistance to the disease. It was soon apparent that the most hopeful means of control involved the development by selection and inbreeding of wilt-resistant strains within commercial varieties and in the crossing of susceptible desirable sorts on resistant undesirable varieties.

WILT-RESISTANT VARIETIES DEVELOPED

Out of many thousand selections and crosses made during the past five years, three new resistant varieties, Pride of Muscatine, Iowa King and Iowa Belle, have been developed and their seed increased. Their resistance to wilt is the outstanding reason why they are recommended to the Iowa truck farmer. In 1930 eight fields of wilt-sick soil, were planted with seed of these three new wilt-resistant varieties in order to measure their productiveness and resistance to wilt. From 30½ acres, 26¼ carloads of melons were harvested and 4,090 pounds of seed were obtained. Twenty-three acres of Pride of Muscatine yielded 20 carloads of melon (3,111 pounds of seed) that were 70 percent resistant to wilt as compared with a resistance of 20 percent in the commercial check of the variety Kleckley Sweet. Iowa King, in a 6-acre field, yielded four and one-quarter carloads (804 pounds of seed) and showed a wilt resistance of 60 percent as compared to 5 percent in the commercial check. Iowa Belle, grown on 1½ acres, produced two carloads of melons (175 pounds of seed) and showed a wilt resistance of 80 percent as compared to 23 percent in the commercial check.

The degree of wilt resistance is that manifested up to blooming time when the checks have to be removed and when each hill is thinned to one plant. In all three of the wilt resistant varieties there was relatively little wilt shown after the blooming stage, as is evidenced from the yield of melons and seed obtained.

DESCRIPTION OF VARIETIES

PRIDE OF MUSCATINE

Pride of Muscatine is a new variety which was developed by four years of inbreeding a wilt-resistant selection from the commercial Kleckley Sweet or Monte Cristo. It is a prolific early maturing selection which produces long, dark green melons superior in shape and in flavor to the parent variety (see fig. 1). The melons are large and have a thick rind, light

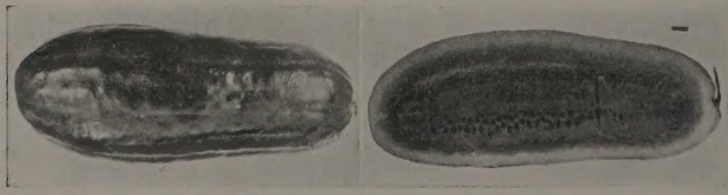

Fig. 1. Pride of Muscatine.

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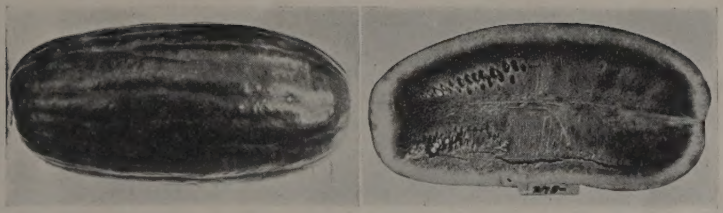

Fig. 2. Iowa King.

brown seeds and red, firm, crisp, sweet flesh. The thick rind gives it a shipping quality must superior to that of the Kleckley Sweet.

IOWA KING

Iowa King is a hybrid selection that has been inbred for the past five years. It is remarkable for its uniformity and vigorous vine growth. The melons are uniformly long, cylindrical and dark green with an inconspicuous light green stripe (see fig. 2). This variety often produces melons weighing over 30 pounds. The melons have a thick rind, white seeds slightly cast with brown, and red flesh which is crisp, tender and exceptionally sweet. This variety is equally as resistant as Pride of Muscatine, but matures about five days later.

IOWA BELLE

The new variety, Iowa Belle, is also a hybrid selection which has been inbred for the past three years. The color of the melons is distinctive, having a characteristic marbling or mottling of green and light green. The shape is either long or round. The melons are deep-meated, flesh red, very crisp and firm with a thick, exceedingly tough rind. The seeds are

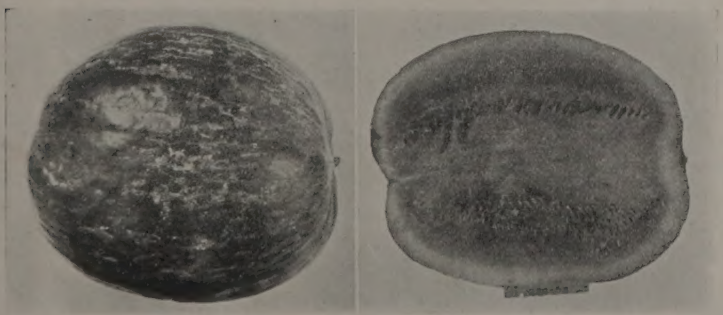

Fig. 3. Iowa Belle.

light colored with various markings of brown, ranging from a slight brown blotch on the side or a narrow brown band around the edge and a dark tip, to an almost brown seed (see fig. 3). The vines make a hardy, vigorous growth, producing an abundance of melons, many of which weigh over 30 pounds. The melon is a good shipper, retaining its quality unusually well after picking. It is equally as resistant as the other two varieties and matures about 10 days later than Pride of Muscatine.

WILT-RESISTANT SEED IS READY FOR DISTRIBUTION

Four thousand pounds of seed of three wilt-resistant varieties are now available for distribution to growers in the state that have wilt-sick soil. This seed may be obtained in small lots from the Botany and Plant Pathology Section of the Iowa Agricultural Experiment Station at the following prices:

25 lbs.	$52.80
10 lbs.	22.30
5 lbs.	11.80
¼ lb.	1.00
1 oz.	.50
Packet	.25

A postal money order or check must accompany each order. Requests will be filed in the order received until the stock is exhausted. Address all communications to Botany and Plant Pathology Section of the Iowa Agricultural Experiment Station, Ames, Iowa.